Kinematics of Riders’ Hands and Horses’ Mouths Studied

Researchers recently determined that our horses are likely picking up on rein cues we’re not meaning to give and reacting to “rider kinematics”—the way we move—in patterns not previously identified.

The kinematic variable of the rein connection is important because “it yields some information about the rider’s ability to follow the movement of the horse with the hand,” explained Marie Eisersiö, MSc, of the Swedish University of Agricultural Sciences Faculty of Veterinary Medicine and Animal Husbandry. It’s very important, from a horse welfare standpoint, that riders continuously work on improving how they use the hands, she added.

Left rein tension tended to cause more mouth movements than right rein tension.

Eisersiö and her fellow researchers studied seven dressage horses with their regular riders aboard at the sitting trot on a treadmill. The team compared the horses’ head, ear, and mouth movements to the riders’ use of the reins and the phase of the trot. They also measured rein tension in three horses.

They found that when horses were “on the bit” (with the neck raised, the poll at the highest point on the topline, and bridge of the nose slightly in front of the vertical, as seen in dressage), they moved their mouth and lips considerably more during the suspension phase of the trot (when the horse has no feet on the ground) than during the stance phase. The horses could have been reacting to unintentional rein pulling during this phase as the rider tried to maintain balance, Eisersiö said, but further research is needed.

Interestingly, the team said, rein tension on the left side tended to cause more mouth movements than rein tension on the right. More research with more horse/rider combinations is necessary to explain and verify this phenomenon, Eisersiö said.

They also found that when the horse was ridden with loose reins and allowed a free, unrestrained position, the peak rein tension occurred in the mid-stance phase of the trot (the moment when the horse has two feet on the ground). Horses lower their heads naturally during this phase, Eisersiö said, which increases rein tension unless the rider follows the head movement with his or her hands.

Perhaps more importantly, the researchers noted, there are few “definites” when it comes to evaluating horses’ reactions to rider kinematics. There is great variability from rider to rider, Eisersiö said, with each rider giving different signals to each horse.

“Studying the horse’s behavior and its behavioral reactions to the rider’s interaction is important because it gives the rider feedback of the horse’s understanding of an exercise,” said Eisersiö, along with its comfort with ridden work.

“The bit in the horse’s mouth presses on sensitive oral tissues, and mouth behaviors are, in many cases, the way the horse handles the pressures in the mouth,” she continued. “The horse might be uncomfortable with the pressures applied on the tissues in the mouth and thus try to manipulate the bit in different ways to seek comfort.”

Eisersiö encourages riders to manage their rein tension better by working on improving their seat, possibly with the help of an instructor or trainer.

“The rider’s ability to follow the horse’s movements and separate the hand from the seat affects the kinematic actions of the hand,” she said. “To avoid acting on the horse’s mouth involuntarily, the rider should learn to follow the horse’s movements without effort and learn to separate the hand from the seat, never using the reins to get a steadier seat in the saddle.”

—Christa Lesté-Lasserre

Transporting Horses to Warmer Climates

There are many issues to consider when you’re planning to transport your horse, especially if you’re moving him to a hot and humid climate. Veterinarians often talk about acclimatization (how a horse must have enough time to adjust to a new weather pattern after moving to a different region) in these scenarios. But acclimatization is not just about letting the horse “get used to it.” Rather, it’s about how we can help prepare our horses.

As the world gets proverbially smaller, and we transport our horses to various countries, it’s essential to adopt the following methods for making the transition comfortable and safe:

- Monitor your horse’s hydration status and water intake daily, and provide electrolytes.
- If needed, help your horse cool down by repeatedly applying and scraping off cold or ice water and using fans.
- Ensure stables have good airflow and paddocks have shade and water available.
- If you will be using local feed and forage, have a feed analysis completed on them and formulate a feeding plan accordingly. If the analysis reveals the feed is lacking in certain minerals, supplement those in your horse’s diet.
- Monitor your horse’s fecal characteristics daily, along with any changes in feeding behavior. Seek veterinary advice even for subtle colic signs.
- Manage risk factors associated with vector-borne diseases: Vaccinate, eliminate standing water where mosquitoes breed, get rid of manure to decrease fly populations, check horses daily for ticks, don’t allow your horse to graze in forests or woodlands, and spray him with topical insect repellents.

—Siraya Chunekamrai, DVM, PhD, WEVA Board Member

Editor’s Note: For further information and a video, see TheHorse.com/33625.